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SUPPLEMENTARY NOTES ON *SALVIA*: *AUDIBERTIA*¹

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At the time I described and illustrated *Salvia Brandegei* (Ann. Mo. Bot. Gard. 25: 117, pl. 20. 1938) I had not seen it in flower, my visit to Santa Rosa Island having been made with the object of securing seeds. The drawing therefore was made from pressed material of which, at that time, there were not many collections. The stamens of all the plants examined were included in the tube and the style was exerted as shown in the plate referred to. Several transplants were brought back, however, and grown at the Blaksley Botanic Garden at Santa Barbara through the courtesy of Mr. M. van Rensselaer. Upon examination of these plants in flower, seven in all, it was found that, although some had the structure which was illustrated in the above-mentioned plate, others had exerted stamens but included styles, as shown in plate 29, herewith presented. This drawing was made by me from living material and put in wash by Mr. S. de Hospodar of the Works Progress Administration. Amongst the seven transplants mentioned above either one type or the other is found to be constant on a given individual. Mr. Wm. Hovanitz, who recently visited the island, kindly examined the living plants there and found the same to be true of them. In so far as I am aware, this is the only American *Salvia* in which this differentiation of floral structure is to be found.

¹ Issued September 25, 1940.

10a. *Salvia* (*Audibertia*: *Jepsonia*) *chionoeplica*, sp. nov.

Pl. 29, figs. 3 and 4.

Frutex pilis ramosis densis utrimque floccoso-niveus; foliorum laminis ovatis vel oblongis 1.5–2 cm. longis, 7–12 mm. latis, in apice rotundatis, in basi ad petiolos 5–10 mm. longos angustatis, marginibus crenulatis, pagina superiore bullulata, inferiore reticulato-venosa, ambabus niveis; floribus in glomerulis densis globosis floccoso-niveis modo solitariis modo duobus, bracteis subfoliosis integris obtusis subtentis; calycibus florentibus 9–10 mm. longis, in maturitate 12–13 mm. longis ore obliquo dentibus duobus inferioribus ad superiorem adjunctis; corollarum caerulearum tubo 13 mm. longo ad medium intus dense piloso-annulato, labia superiore 4 mm. alta, inferioris paulo longioris lacinia media plana obtuseata ut videtur deflexa; staminibus valde exsertis, ut videtur arcuatis; stylo ut videtur deflexo.

MEXICO: BAJA CALIFORNIA. 36 mi. east of Rosario, 12. IV. 1931, I. L. Wiggins 5300 (Stanford Univ., TYPE).

This most interesting plant is the ninth species of *Audibertia* to be found in northern Lower California and the only one endemic to that region. In habit of foliage and inflorescence it is similar to *S. Clevelandii*. The leaves are more bullate, however, and snowy with a dense branched pubescence. Such pubescence is otherwise characteristic in *Audibertia* only of *S. leucophylla*. The bracts and flowers are nearly those of *S. leucophylla*, but blue rather than rose color. According to the collector, they were "clear lavender with red spots." The orifice of the calyx, like that of *S. leucophylla*, is nearly entire. Although the two lower teeth are still perceptible, they are wholly joined to the upper. In *S. leucophylla*, they are obsolete or nearly so. The conformation of the corolla is similar to that species, but the stamens appear to be arcuate, rather than thrust out and the style is apparently declined. The species occurs in the *Larrea-Franseria* formation. The wash drawing was made by Mr. H. Harthende of the Works Progress Administration.

***Salvia Munzii* × *apiana*.**—*Salvia Munzii* occurs in an almost pure stand near the upper Otay Dam in San Diego Co., Calif.,

covering the slope for many acres. Along the slope at its southern border it comes into contact with *S. apiana*. Along this interface two hybrid plants were recently found by Mr. Harlan Lewis. Like those from Lower California, these hybrids closely resemble *S. Munziana* in vegetative habit and in inflorescence, but have larger leaves and are whiter. The flowers, however, are about intermediate and the hybrid may readily be distinguished from *S. Munzii* by the marked exertion of the stamens. A traverse of a mile was recently made through an area on San Antonio Mesa, Lower California, where these two species occur together, and of about 3,000 plants of both species only one was found to be of hybrid origin. This will give an approximate notion of the infrequency of the hybrid, when both species occur abundantly together.

Pollen smears were made from both parent species and the hybrid found at Otay Dam. These showed 16 pairs of chromosomes for both species. Stewart (Am. Jour. Bot. **26**: 731. 1939) has reported 15 for *S. Munzii*. However, his count was made from root-tip material, and, because of the small size of the chromosomes of *Salvia*, it is difficult to obtain accurate counts from somatic material. Nevertheless, it is possible that his count was correct for the material which he examined. The hybrid also had 16 pairs, but there were a number of chromosome aberrations, chiefly chromosome bridges with accompanying fragmentation. This suggests that there may have been one or more inversions. Pollen fertility in the hybrid was about 60–75 per cent, compared to 95–100 per cent in both species. The strong secondary association of at least 4 chromosomes in *Salvia apiana* suggests that this species may be a polyploid.

The hybrids of *S. apiana* × *mellifera* and *S. apiana* × *Munzii* are readily distinguishable; the former is usually more like *S. apiana*, particularly in the inflorescence. The differences in flower color and the occurrence of albinos suggest that the inheritance of this character in the two species is due to different factors.

The author is indebted to Dr. Thomas W. Whitaker for the data contained in paragraph two.

EXPLANATION OF PLATE

PLATE 29

Figs. 1 and 2. *Salvia Brandegei* drawn from life (flower $\times 5$, stamen $\times 10$).

Figs. 3 and 4. *Salvia chionoeplica* (habit sketch one-half natural size, flower drawn from a boiled specimen, $\times 5$).